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The butterflies of the northern Aegean Island of Gökçeada (Imros) (Lepidoptera: Papilionoidea & Hesperioidea)

S. Seven

Abstract

In this study, butterflies collected from Gökçeada are presented, including old records from the literature. Seven species collected during the course of this study [*Allancastris cerisyi* (L., 1758), *Leptidea sinapis* (L., 1758), *Issoria lathonia* (L., 1758), *Plebicula thersites* (Cantener, [1835]), *Pseudophilotes vicrama* (Moore, 1865), *Tarucus balkanicus* (Freyer, [1844]), *Glaucopsyche alexis* (Poda, 1761)] are the first record for the Gökçeada. With this study the number of species from Gökçeada was raised from 45 to 52. Seven species are proposed for endangered (E) status and 13 species for vulnerable (VU) status.

KEY WORDS: Butterflies, new records, distribution, endangered, vulnerable, Imros, Turkey.

Las mariposas del norte de la isla egea de Gökçeada (Imros) (Lepidoptera: Papilionoidea & Hesperioidea)

Resumen

En este estudio, se presentan las mariposas capturadas de Gökçeada, incluyendo antiguas citas bibliográficas. Siete especies capturadas durante el curso de este estudio [*Allancastris cerisyi* (L., 1758), *Leptidea sinapis* (L., 1758), *Issoria lathonia* (L., 1758), *Plebicula thersites* (Cantener, [1835]), *Pseudophilotes vicrama* (Moore, 1865), *Tarucus balkanicus* (Freyer, [1844]), *Glaucopsyche alexis* (Poda, 1761)] son las primeras citas para Gökçeada. Con este estudio el número de especies de Gökçeada fue elevado de 45 a 52. Siete especies son propuestas como en peligro de extinción (E) y 13 especies como vulnerables (VU).

PALABRAS CLAVE: Mariposas, nuevas citas, distribución, en peligro de extinción, vulnerables, Imros, Turquía.

Introduction

Gökçeada located in the North Aegean Sea is nearly 13 km west from Gelibolu, 12 km from Limni and 14 km from Semadirek (Figure 1). It is the biggest island of Turkey with an area of 285 km². The island is Mediterranean in landscape, climate and dominant plant cover (maquis). The flora is similar to west Anatolia (SEÇMEN & LEBLEBICI, 1978). Currently in many areas the phragmites formation takes shape after fires. Olive plants are widely distributed as an agricultural crop. Due to human population increase, tourism and altering land for agricultural activities the natural flora and fauna has been damaged. The studies conducted previously showed that Gökçeada has not been fully researched in terms of its insect fauna. ÖZSARAÇ *et al.* (2001) Heteroptera and ARAS *et al.*, (2002) reported the Formicidae fauna of Imros. The first faunistic records related with the Lepidoptera fauna were reported by KILIÇ (1989). KILINÇ & EKMEKÇI (1990) determined genital variations of male samples of *Neohipparchia fatua* (Freyer, 1844) that occur on this island. The last study of the Lepidoptera fauna of this island was conducted by OKYAR & AKTAÇ (2006). These studies demonstrated the occurrence of 45 species on the island.

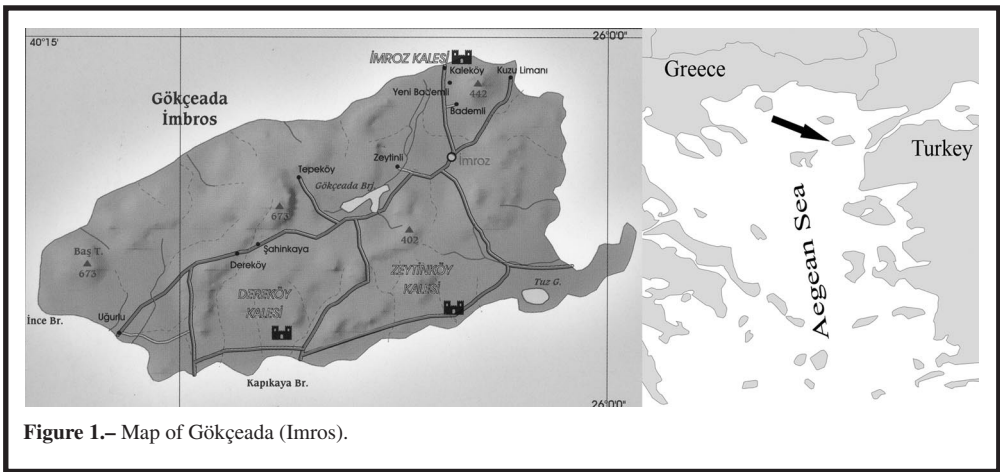


Figure 1.– Map of Gökçeada (Imros).

Material and Methods

Samples were collected in May and August 2004-2006 and were prepared and labelled according to standard museum methods. Samples were determined according to HESSELBARTH *et al.*, (1995). New records are marked with (*). The old relevant data of Gökçeada fauna are given by author, publication year and pages. Finally, I discuss the current status of the species according to obtained data and observations (KOÇAK *et al.*, 1998). Specimens are preserved in the private collection of the author.

Collection and observation areas in Gökçeada are;

- Locality 1. Centrum: 110 m, 04-VIII-2004; 90 m, 20-V-2006
- Locality 2. Dereköy: 200 m 27-VII-2005; 150 m, 18-V-2006.
- Locality 3. Tepeköy (Çınaraltı): 300 m, 1-VIII-2004.
- Locality 4. Aydıncık: 80 m, 6-VIII-2004; Aydıncık 3 km, 120 m, 21-V-2006.
- Locality 5. Eşelek (Alis çiftliği): 230 m, 19-V-2006
- Locality 6. Kefaloz: 10 m, 22-V-2006.
- Locality 7. Kefaloz (Kaya mezarı): 40 m, 22-V-2006.
- Locality 8. Kapıkaya: Kapıkaya yolu, 100 m, 18-V-2006, 200 m, 19-V-2006
- Locality 9. Zeytinli: 90 m, 6-VII-2005; 75 m, 18-V-2006
- Locality 10. Uğurlu: 30 m, 3-VIII-2004.

Results and discussion

PAPILIONIDAE

Papilio machaon (Linnaeus, 1758)

KILINÇ (1989: 8), OKYAR & AKTAÇ (2006: 78). Loc. 1, 9. In this study, numerous specimens of this species were observed and caught in gardens in the centre of Gökçeada, while flying around the flowers of Umbelliferae. It should be placed in the category of VU.

Iphiclides podalirius (Linnaeus, 1758)

KILINÇ (1989: 8), OKYAR & AKTAÇ (2006: 78). Loc. 1, 2, 3, 8, 10. In the present paper, this

species is abundant in Gökçeada, collected from localities in Çınaraltı and Kapıkaya and observed in Dereköy and central of Gökçeada. It is abundant on Gökçeada.

Allancastris cerisyi ferdinandi Stichel, 1907*

Loc. 5. It is represented by ssp. *ferdinandi*, also distributed in Europe. Only one worn specimen was caught on May 2006 probably because of the late season. It should be placed in the category of E.

PIERIDAE

Gonepteryx cleopatra (Linnaeus, 1767)

KILINÇ (1989: 8), OKYAR & AKTAÇ (2006: 78). Loc. 1, 3, 4, 8, 9. *G. cleopatra*, which is a Mediterranean species, was observed and caught in the numerous localities in Gökçeada. It is abundant on Gökçeada.

Pieris brassicae (Linnaeus, 1758)

KILINÇ (1989: 8), OKYAR & AKTAÇ (2006: 78). Loc. 1, 2, 3, 8, 9, 10. This species was observed in various places, especially gardens of houses in the centre of Gökçeada. It is one of the abundant species in Centrum, Gökçeada.

Pieris rapae (Linnaeus, 1758)

KILINÇ (1989: 8), OKYAR & AKTAÇ (2006: 78). Loc. 1, 4, 9, 10. In this study, the species was collected in almost all localities in Gökçeada.

Colias crocea (Fourcroy, 1785)

KILINÇ (1989: 8), OKYAR & AKTAÇ (2006: 78). Loc. 1, 4, 8. In the present study, this species was found abundantly from Kapıkaya and Aydıncık in Gökçeada and observed in gardens in Centrum.

Pontia edusa (Fabricius, 1777)

Loc. 2, 6. *P. edusa* was found on a cloudy day from Kefaloz, near the sea, at the stony steppe and a ruderal area in Dereköy. Previously it was recorded by KILINÇ (1989: 8) and by OKYAR *et al.*, (2006: 78), as *P. daplidice* (Linnaeus, 1758) [sic!]. It should be placed the category of VU.

Aporia crataegi (Linnaeus, 1758)

KILINÇ (1989: 8), OKYAR & AKTAÇ (2006: 78). Loc. 1, 2, 4, 5, 6, 8, 9, 10. The species was collected abundantly from numerous localities in Gökçeada.

Euchloe ausonia (Hübner, 1804)

OKYAR & AKTAÇ (2006: 78). Loc. 8. In the present paper, only one specimen belonging to this species was caught in Mayıs on Kapıkaya road. It is one of the rare species in Gökçeada, and should be placed in the category of E.

Anthocharis cardamines (Linnaeus, 1758)

OKYAR & AKTAÇ (2006: 78). This species was not seen in the present study.

Leptidea sinapis (Linnaeus, 1758) *

Loc. 8. *L. sinapis* was found in open *Quercus* forest in May from Kapıkaya. This is first record for Gökçeada. Because of its rare occurrence in Gökçeada, the species should be placed in the category of E.

NYMPHALIDAE

Danaus chrysippus (Linnaeus, 1758)

OKYAR & AKTAÇ (2006: 78). No specimens of this species were seen in this study.

Pandoriana pandora ([Denis & Schiffermüller], 1775)

KILINÇ (1989: 8), OKYAR & AKTAÇ (2006: 78). Loc. 1, 3, 6, 8, 9. The species occurs abundantly in Gökçeada.

Azuritis reducta Staudinger, 1901

KILINÇ (1989: 8), OKYAR & AKTAÇ (2006: 78). Loc. 4, 8. The species occurs in open *Quercus* forest in May. It was caught while flying around *Urtica* and bushes near a small pool. It is not abundant in Gökçeada. It should be placed the category of VU.

Cynthia cardui (Linnaeus, 1758)

KILINÇ (1989: 8), OKYAR & AKTAÇ (2006: 78). It is widely distributed in Gökçeada.

Vanessa atalanta (Linnaeus, 1758)

KILINÇ (1989: 8), OKYAR & AKTAÇ (2006: 78). Loc. 8, 9. *V. atalanta* is found in open *Quercus* forest in May in Kapıkaya and observed in August in Zeytinli.

Euvanessa antiopa (Linnaeus, 1758)

OKYAR & AKTAÇ (2006: 78). This species was not found in the present study.

Nymphalis polychloros (Linnaeus, 1758)

OKYAR & AKTAÇ (2006: 78). Loc. 2. The species occurs in open *Quercus* forest in the Dereköy-Tepeköy road. It should be placed the category of VU in Gökçeada.

Polygonia c-album (Linnaeus, 1758)

OKYAR & AKTAÇ (2006: 78). The species was not seen in the current study.

Polygonia egea (Cramer, [1775])

KILINÇ (1989: 8), OKYAR & AKTAÇ (2006: 78). Loc. 8. *P. egea* occurs in open *Quercus* forest in May in Kapıkaya. It should be placed in the category of VU.

Melitaea didyma (Esper, [1779])

KILINÇ (1989: 9), OKYAR & AKTAÇ (2006: 78). Loc. 4, 5, 8. This species is found abundantly from Aydıncık, Alis çiftliği and Kapıkaya.

Melitaea trivia ([Denis & Schiffermüller], 1775)

KILINÇ (1989: 9), OKYAR & AKTAÇ (2006: 78). Loc. 4, 5, 8. Found in the same localities and times as the previous two species.

Issoria lathonia (Linnaeus, 1758)*

Loc. 2, 4. This species was found on the side of a pathway on wet malacophil ground. It is new record for Gökçeada.

SATYRIDAE

Kirinia roxelana (Cramer, [1775])

OKYAR & AKTAÇ (2006: 78). Loc. 3. Many specimens of this species were observed on trunks

of *Pinus* and *Platanus* with *N. fatua* and *N. statilinus* in Çınaraltı. It is distributed in Gökçeada locally but abundantly. It should be placed in the category of VU.

Neohipparchia fatua (Freyer, 1844)

KILINÇ *et al.*, (1990), OKYAR & AKTAÇ (2006: 78). Loc. 3. *N. fatua* is found with the previous species in the same localities. In Gökçeada it is local but abundant.

Neohipparchia statilinus (Hufnagel, 1766)

KILINÇ (1989: 9), OKYAR & AKTAÇ (2006: 78). Loc. 3. In this study, the species was found in the same localities with *K. roxelana* and *N. statilinus*. In Gökçeada it is local but abundant.

Melanargia larissa (Geyer, [1828])

KILINÇ (1989: 9), OKYAR & AKTAÇ (2006: 78). Loc. 3. In this study, the species was caught while flying on the phrigana formation. It is not abundant in Gökçeada.

Maniola jurtina (Linnaeus, 1758)

KILINÇ (1989: 9), OKYAR & AKTAÇ (2006). Loc. 1, 6, 7, 10. *M. jurtina* is one of the widely distributed species in Gökçeada.

Maniola halicarnassus Thomson, 1990

Coenonympha pamphilus (Linnaeus, 1758)

KILINÇ (1989: 9), OKYAR & AKTAÇ (2006: 78). Loc. 1, 2, 3, 4, 5, 6, 8. A total of 37 specimens was collected from numerous localities in island. It is one of the widely distributed species in Gökçeada.

Lasiommata maera (Linnaeus, 1758)

KILINÇ (1989: 9), OKYAR & AKTAÇ (2006: 78). Loc. 5. Only one specimen belonging to this species was caught in open *Quercus* forest. It is not abundant in Gökçeada. It should be placed in the category of VU.

Lasiommata megera (Linnaeus, 1767)

KILINÇ (1989: 9), OKYAR & AKTAÇ (2006: 78). Loc. 5, 8. This species was found at Alis çiftliği, and observed in Kapıkaya. This species is local and rare in Gökçeada. It should be placed the category of VU.

Hyponephele lupina (Costa, [1836])

KILINÇ (1989: 9), OKYAR & AKTAÇ (2006: 78). Loc. 5, 8. This species is found from Kapıkaya and Eşlek in Gökçeada, where it is local but not abundant.

LYCAENIDAE

Lycaena phlaeas (Linnaeus, 1761)

KILINÇ (1989: 9), OKYAR & AKTAÇ (2006: 78). Loc. 1, 2, 3, 4, 5, 7, 8. One of the widely distributed species in Gökçeada.

Polyommatus icarus (Rottemburg, 1775)

KILINÇ (1989: 9), OKYAR & AKTAÇ (2006: 78). Loc. 1, 3, 4, 5, 6, 7, 8. One of the widely distributed species in Gökçeada.

Polyommatus thersites (Cantener, [1835])*

Loc. 2, 4, 8. This species, caught from Dereköy, Aydıncık, Kapıkaya is recorded for the first time from Gökçeada. It is a local and rare species in Gökçeada. It should be placed in category of E.

Polyommatus admetus (Esper, 1783)

KILINÇ (1989:9), OKYAR & AKTAÇ (2006: 78). Loc. 5, 8. In this study, *P. admetus* was observed from only a few localities. It is not abundant in Gökçeada. It should be placed in category of VU.

Aricia agestis ([Denis & Schiffermüller], 1775)

KILINÇ (1989: 9), OKYAR & AKTAÇ (2006: 78). Loc. 8. In May it is recorded from only one specimen from Kapıkaya in Gökçeada. It should be placed in category of VU.

Satyrrium ilicis (Esper, 1779)

KILINÇ (1989: 9), OKYAR & AKTAÇ (2006: 78). Loc. 4, 6, 8. Found abundantly from numerous localities in Gökçeada.

Celastrina argiolus (Linnaeus, 1758)

KILINÇ (1989: 9), OKYAR & AKTAÇ (2006: 78). Loc. 1, 3. The species was found singly in May and in recorded from three specimens collected in August, from Centrum and Çınaraltı. It is present in Gökçeada locally not but abundantly. It should be placed in category of VU.

Callophrys rubi (Linnaeus, 1758)

KILINÇ (1989: 9), OKYAR & AKTAÇ (2006: 78). Loc. 2. Three specimens were recorded in thickets. It is present in Gökçeada locally but abundantly.

Leptotes pirithous (Linnaeus, 1767)

KILINÇ (1989: 9), OKYAR & AKTAÇ (2006: 78). Loc. 2. The species was observed with *P. vicrama*, *T. balcanicus* in August from only one locality in the *Pinus* forest along a river side. It is present locally and not abundantly in Gökçeada. It should be placed in the category of VU.

Pseudophilotes vicrama schiffermuelleri (Hemming, 1929)*

Loc. 2, 4. Larvae of this species are feeding with young fruits and flowers of Labiate HESSELBARTH (1987). WILTSHIRE (1957) was reported that this species was fed with *Thymus*. And also COUTSIS (1979) was reported that this species lay down its eggs on *Satureja thymbra*. In the present study it was collected from open *Quercus* and *Pinus* forest where was abundantly found *Thymus* in Gökçeada. This is a new record for Gökçeada. This species, which is currently known from only one locality, should be placed in the category of E.

Tarucus balkanicus (Freyer, [1844])*

Loc. 2. This species, previously known from Limnos (COURTIS, 2001), was found by a pathway near a small pool. It is a new record for Gökçeada. It is one of the rare species in Gökçeada and it should be placed in the category of E.

Glaucopsyche alexis (Poda, 1761)*

Loc. 4. Worn specimens in May recorded from open *Quercus* forest from Alis Çiftliği in Gökçeada. This species was recorded from Limnos by COURTIS (2001) in April. It should be placed in the category of E in Gökçeada.

HESPERIIDAE

Thymelicus sylvestris (Rottemburg, 1775)

KILINÇ (1989: 9), OKYAR & AKTAÇ (2006: 78). Loc. 1, 4, 6, 8. This is the most abundant hesperid on the island.

Thymelicus acteon (Rottemburg, 1775)

OKYAR & AKTAÇ (2006: 78). Loc. 6, 8. The species is found in more xeric situations. It is rare on the island. It should be placed in the category of VU.

Carcharodus alceae (Esper, [1780])

KILINÇ (1989: 9), OKYAR & AKTAÇ (2006: 78). Loc. 3, 4. Nine specimens of this species were recorded from various localities on Gökçeada. It is abundant on the island.

Carcharodus orientalis Reverdin, 1913

OKYAR & AKTAÇ (2006: 78). Loc. 2, 4, 6, 8. A total of 10 specimens from numerous localities on the island were collected. It is present in Gökçeada abundantly.

Neospialia orbifer (Hübner, [1823])

OKYAR & AKTAÇ (2006: 78). 2, 4, 6, 7, 8. This species is represented by 15 specimens collected in various localities. In Gökçeada it is abundant.

Discussions and Results

The species found on the geographically isolated island of Gökçeada probably originated from Mediterranean Region and west Anatolia. With this study 39 species belonging to 6 families and 31 genera were determined. Seven of the species represent new records for the island. With this study the number of species found on Gökçeada was raised to 52. *Archon apollinus* (Herbst, 1798) and *Zerynthia poylxena* ([D. & Schiff.], 1775) feed on *Aristolochia* sp. as does *Allancastris cerisy* (Godart, [1824]), but these two species were not found although the host plant is present on this island. But these species might be found on Gökçeada since *Z. polyxena* is known from Thasos in North Aegean Island (HOLLOWAY, 1996). Another species that may be found on the island is *Gegenes nostrodamus* (F., 1793) since it is known from Limnos which is similar to Imros faunistically (COURTIS, 2001). Although *Danaus chrysippus* (L., 1758) was observed by OKYAR *et. al.* (2006), I did not find this species. *D. chrysippus* is migratory, which may explain why it was not found in this study. The increase of human populations and the subsequent loss of natural areas for agriculture seems to have caused decreasing populations of native butterflies and also threatened less frequent and local species in Gökçeada. In this study for 7 species are regarded as endangered (E) (*A. cerisyi*, *E. ausonia*, *G. alexis*, *L. sinapis*, *P. thersites*, *P. vicrama*, *T. balkanicus*) and 13 species are regarded as vulnerable (VU).

Currently Imros (285.5 km², 52 species) is the fourth island among the North Aegean Islands in terms of diversity following Thasos (279 km², 75 taxa), Lesbos (1630 km², 64 taxa), Samos (468 km², 64 taxa) (HOLLOWAY, 1996; KOUTSAFTIKIS, 1970; LÜTTGEN, 1993; LITTLER, 1991).

Table 1.– Rate of total species and surface area of Northern Aegean Islands

| Island | Surface area | Total sp. |
|---------|-----------------------|-----------|
| Hios | 842 km ² | 49 |
| Imros | 285.5 km ² | 52 |
| Lesbos | 1630 km ² | 64 |
| Limnos | 477 km ² | 33 |
| Samos | 468 km ² | 64 |
| Tenedos | 36.03 km ² | 15 |
| Thasos | 279 km ² | 64 |

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